

PHOTINOIDES, A NEW GENUS, WITH THREE NEW SPECIES (COLEOPTERA: LAMPYRIDAE)

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The recent receipt of specimens of a supposed species of *Photinus* with a remarkable structure of the pygidium and the 8th ventral abdominal segment, from Dr. Wolfgang Weyrauch, of the Instituto Miguel Lillo, Tucumán, Argentina, caused the reexamination of some Bolivian specimens with enlarged 8th ventral segments, received some time ago from Sr. Luis E. Peña of Santiago, Chile. Meanwhile, Mr. J. W. Green, of the California Academy of Sciences, sent me a small Mexican *Photinus* having a similar structure, from the Canadian National Collection. All of these have somewhat similar modifications of the terminal abdominal segments, and the aedeagus of the Bolivian species is definitely not that recognized as typical for *Photinus*. I am therefore establishing a new genus, *Photinoides*, to embrace these species.

In the nearctic species and most tropical species of *Photinus* (Fig. 1) so far examined the 8th (7th visible) ventral abdominal segment is retracted under the 7th so that sometimes only two narrow posterior edges are visible, according to Barber (1941, p. 4). An exception is *Photinus bidenticauda* McDermott (1958, p. 25) in which the 8th ventral segment is broadened posteriorly and is medially sulcate, while the pygidium bears pointed projections directed ventrally. I have, therefore, transferred *Photinus bidenticauda* to my new genus *Photinoides*. In *Robopus* Motschoulsky the 8th ventral segment is well developed and conspicuously the source of light; in *Photinoides* the luminous organs are on the 6th and 7th segments as in *Photinus* and it is doubtful if the residual larval organs on the 8th segment are functional. *Macrolampis* has the 8th ventral segment less retracted than does *Photinus*, but in no species examined has there been structures resembling those of *Photinoides*, and the aedeagal pattern is quite different, according to McDermott (1962, p. 22). In *Photinus* and *Macrolampis* the pygidium is simple, nearly flat or slightly tectiform, and without appendages.

The following key to the South American genera of Photinini is an adaptation of a key by E. Olivier (1907, p. 27), with *Petalacmis* E. Olivier, 1908, and my new genus *Photinoides* added. Two generic names used by E. Olivier are replaced in this key. *Pyractomena* Melsheimer is used instead of *Lecontea* E. Olivier; this change has been in effect for a few years. *Robopus* Motschoulsky, 1852, is used instead of *Heterophotinus* Olivier, 1894; this change will be documented in my forthcoming revision of the lampyrid part of the Coleopterorum Catalogus.

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KEY TO THE SOUTH AMERICAN GENERA OF PHOTININI

1. Antenna with 9 segments, the last segment spatulate and longer than the others combined -----PETALACMIS E. Olivier
Antenna with 11 segments, with last segment much shorter than others combined-- 2
2. Body broadly elliptical; eyes of male very large, often contiguous; two glazed spots on pronotum -----CRATOMORPHUS Motschoulsky
Body oval scutiform (that is, narrowed posteriorly), or tectiform; eyes of male not contiguous; no glazed spots on pronotum-----ASPISOMA Laporte
Body oblong, oval, or parallel----- 3
3. Pronotum elongate, with sides parallel, distinctly angulate at apex-----
-----PYRACTOMENA Melsheimer
Pronotum rounded or attenuate in front, with sides not parallel, with apex not distinctly angulate ----- 4
4. Luminous organs on the 6th and 7th ventral segments----- 5
Luminous organs confined to the 8th ventral segment----- 7
5. Body form elongate, pronotum short; 8th ventral segment not short or retracted nor thickened posteriorly -----MACROLAMPIS Motschoulsky
Pronotum and elytra of normal proportions----- 6
6. Abdomen with 8th ventral segment short or retracted under 7th, its posterior edge not thickened -----PHOTINUS Laporte
Abdomen with 8th ventral segment long and broad, not retracted, its posterior edge more or less thickened-----PHOTINOIDES new genus
7. Antenna variable, facies photinoid -----ROBOPUS Motschoulsky

Photinoides McDermott, NEW GENUS

Except for the structure of the terminal abdominal segments, the characters of this genus are in general those recognized for the nearctic *Photinus*, as defined by Green (1956, p. 564). But the peculiar terminal segments warrant separation as a distinct genus.

MALE: 8th ventral abdominal segment not retracted but almost as long as 7th and expanded laterally to about ¾ width of 7th; there may be a rather deep emargination of median third of posterior edge and a longitudinal sulcus in basal half, giving a somewhat bilobed appearance; sometimes 8th ventral segment inflated. The 8th ventral segment without luminous tissue, except for residual larval organs; what appear to be transverse muscle fibers may be visible. Pygidium broadly ogival, hairy, the sides deflexed closely over the 8th ventral segment; pygidium simple, or with dentiform ventrad projections, or with a long, curved, distally broadened projection arising from each edge near base, the apices of these projections closely approaching apex of genital segment; genital segment small, semi-elliptical.

FEMALE: The single luminous organ on the 6th ventral segment not subrectangular as is usual in *Photinus* females but narrowly trapezoidal; posterior width of luminous organ about twice basal width.

TYPE-SPECIES: *Photinoides penai* McDermott, new species.

KEY TO THE SPECIES OF PHOTINOIDES

1. Pygidium without projections on ventral surface, but with ventral surface closely applied to dorsal surface of 8th ventral abdominal segment ----- 2
Pygidium with projecting structures----- 3
2. Size small (about 7.0 x 2.5 mm.); elytra dull brown; pronotum with median broad black vitta having ivory-colored areas on each side-----MEXICANUS new species
Size large (13.0-15.0 x 4.8-7.0 mm.); elytra grayish yellow to light brown; pronotal disk brown, subrectangular -----PENAI new species

3. Size small (about 6.0 x 2.0 mm.); elytra light brown with wide lateral and narrow sutural margins yellow; pronotal disk roseate with narrow black vitta; pygidium apparently hexagonal, with two subtriangular projections on ventral surface--
 -----BIDENTICAUDA (McDermott)
 Size large (about 13.0 x 5.0 mm.); elytra dark brown, most of suture and lateral borders ivory colored; pronotal disk brown with two distinct pale lines near side; pygidium with two long curved, spoon-like projections approaching apex of genital segment-----MYSTRIONOPHORUS new species

Photinoides mystrionophorus McDermott, NEW SPECIES

(FIG. 2)

Dorsal appearance much like that of numerous species of *Photinus*; outline rather broad and subparallel.

HOLOTYPE, MALE: *Dimensions* 13.0 mm. long, 5.1 mm. wide; widest at about midlength. *Pronotum* 2.75 mm. long, 3.6 mm. wide; slightly widest just forward of posterior angles, the latter obtuse and rounded. Semicircular in forward three-fourths; base nearly straight; sides and apex nearly flat, coarsely but not densely punctate. Disk very convex, the convex portion extending forward over the large eyes; with a very weak median carina; villous on sides and basal half of disk, pale and not dense; a subrectangular brown spot, the forward edge of which is arcuate, covers disk with two very narrow, paler and somewhat pinkish longitudinal streaks near the sides. Lateral and forward surfaces almost white, except for light brown coloration of extended convex portion over eyes. *Scutellum* light brown, punctate, hairy; mesonotal plates dull brown. *Elytra* each 10.25 mm. long by 2.55 mm. wide; practically parallel from basal sixth to apical third; the combined disks of same width as base of pronotum. Explanate margins widening from base to 0.5 mm. at maximum and narrowing gradually posteriorly, becoming indistinct at about apical fifth. No costae visible. Texture coarsely and rather irregularly rugose; villosity short and pale, not dense; a very short secondary pubescence visible in posterior two-thirds. Epipleura basally defined and not prominently widened, gradually approaching elytral margins almost to apices. Ground color of disk translucent dark brown by transmitted light, but appears opaque greyish brown by general illumination, contrasting with the almost white explanate margins, the white area extending into edges of disk to give a pale border about one-third of elytral width at midlength; sutural bead yellow. *Head* with forward portion of vertex dark reddish brown, becoming black basally. Eyes very large, 2.6 mm. across, 0.75 mm. between them over the antennal sockets; intraocular margins nearly parallel. Maxillary palpi large, dark brown, of the usual slightly curved, conoidal shape. Mandibles relatively small, 0.7 mm. across in closed position. *Antennae* 6.65 mm. long, about one-half body length; dark brown becoming practically black distally; slightly compressed, tapering, and very hairy. *Prosternum* truncate in front; yellowish brown, as is also mesosternum; metasternum darker and with very short, dense, appressed villosity. *Abdomen* with ventral segments 2 to 5 short, yellowish brown; 6th and 7th luminous over entire surface, with marked foveae; 6th medially but little longer than 5th owing to the broad emargination; 7th longer than 6th but narrower and broadly but more shallowly emarginate. 8th yellow and as long as the 7th, somewhat laterally expanded. Segments not foliate or lobed. Tergites, except pygidium, dull brown. *Pygidium* broadly ogival, translucent yellow, hairy, sides deflexed over 8th ventral segment and with spoon-shaped projections. *Legs* yellowish brown, darkening distally. Tibial spurs very small and short, dark brown. Claws simple. Tarsi very hairy. *Aedeagus* not exposed, and was not removed because of the danger of damage to the surrounding specific structures.

ALLOTYPE, FEMALE: Generally similar to the male. *Dimensions* 11.9 mm. long by 4.6 mm. wide. *Pronotum* 2.35 mm. long by 4.0 mm. broad—broader than in male. Convex disk mostly reddish, with irregular brown marks at sides and a faint infusate streak on each side of the median line. *Elytra* 9.85 mm. long by 2.3 mm. wide; somewhat lighter brown than in male. *Head* with eyes 1.4 mm. across, 0.64 mm. between them—markedly smaller than in male. *Antennae* 5.0 mm. long, light brown, and shorter than in male. *Abdomen* with ventral segments 3, 4, 5, 7,

and 8 brown; 6 mostly yellow; 8 broadly incurved on each side in apical half and sharply V-emarginate apically. Long-trapezoidal luminous organ median in 6th ventral. *Pygidium* semi-elliptic.

HOLOTYPE male, San Alejandro, Ucayali Basin, Peru, 300 meters altitude collected by Wolfgang Weyrauch, July 31, 1947, Weyrauch No. 1414. ALLOTYPE female, same data as holotype, except collected on July 31, 1955. The types have been returned to Dr. Weyrauch for deposition in the collection of the Instituto Miguel Lillo, Tucumán, Argentina.

Photinoides penai McDermott, NEW SPECIES
(Figs. 3, 5-7)

Dorsal appearance quite similar to that of *P. mystrionophorus*.

HOLOTYPE, MALE: *Dimensions* 14.65 mm. long by 7.0 mm. wide; slightly elliptical. *Pronotum* 2.8 mm. long by 3.95 mm. broad; semi-elliptic in forward $\frac{3}{4}$, then narrowing slightly to angles. Edges slightly reflexed. Angles *ca.* 90°, and only slightly produced. Base sinuate. Sides and forward border coarsely but not densely punctate. Very little villosity. Sides nearly transparent, forward border slightly tinged brownish. Disk very convex, dark brown, the convexity extending forward over the large eyes. *Scutellum* brown, mesonotal plates black. *Elytra* each 11.85 mm. long by 3.5 mm. wide. Villosity short and rather dense. No visible costae. Explanate margins narrow. Actual color transparent yellow but appearing dull brown over wings, giving the effect of a pale lateral border. Suture not pale. Bases opaque reddish brown; apices separately rounded. *Head* with frons black; interocular margins parallel; 2.35 mm. across eyes, 0.64 mm. between them; eyes very large. Mandibles relatively small, 0.58 mm. across in closed position. Palpi of the usual form, nearly black. *Antennae* practically black, compressed, densely hairy, 6.25 mm. long. *Prosternum* and mesosternum yellowish brown; metasternum dark brown. *Abdomen* with ventral segments 2, 3, and 4 reddish brown, 5 mostly yellow; 6 and 7 entirely luminous, somewhat longer than the 5th, and with pronounced "foveae"; slightly emarginate medially. 8th segment yellow, as long as 7th and nearly as wide; laterally intumescens; medially transparent in basal half; small larval organs visible at base. Posterior edge sinuate, with a median cluster of long hairs. All abdominal segments densely pale villous. *Pygidium* ogival, the sides bent down and resting against the dorsal surface of the 8th ventral segment, forming a partially semi-circular opening in which the genital segment may be seen. The pygidium is much longer than the 8th ventral segment, and bears no projections. *Legs* dark brown; claws simple.

ALLOTYPE, FEMALE: Generally similar to the male; dimensions 15.0 mm. long by 6.0 mm. wide. Eyes smaller than in male; antennae 5.0 mm. long. *Abdomen* with trapezoidal luminous organ median on 6th ventral segment; 7th segment brown, contrasting with the pale 6th; 8th segment long, narrowed toward the bilobed apex. *Pygidium* close to and following the edges of the 8th ventral segment.

HOLOTYPE male, El Palmar, Bolivia, 900 meters altitude, collected by Luis E. Peña, October 8, 1956. ALLOTYPE female, Puente Vilia, Tungas, Bolivia, 1700 meters altitude, collected by Luis E. Peña, December 12, 1955. The holotype and allotype are being deposited in the United States National Museum. The species is named for Sr. Peña, who has collected many interesting specimens for me.

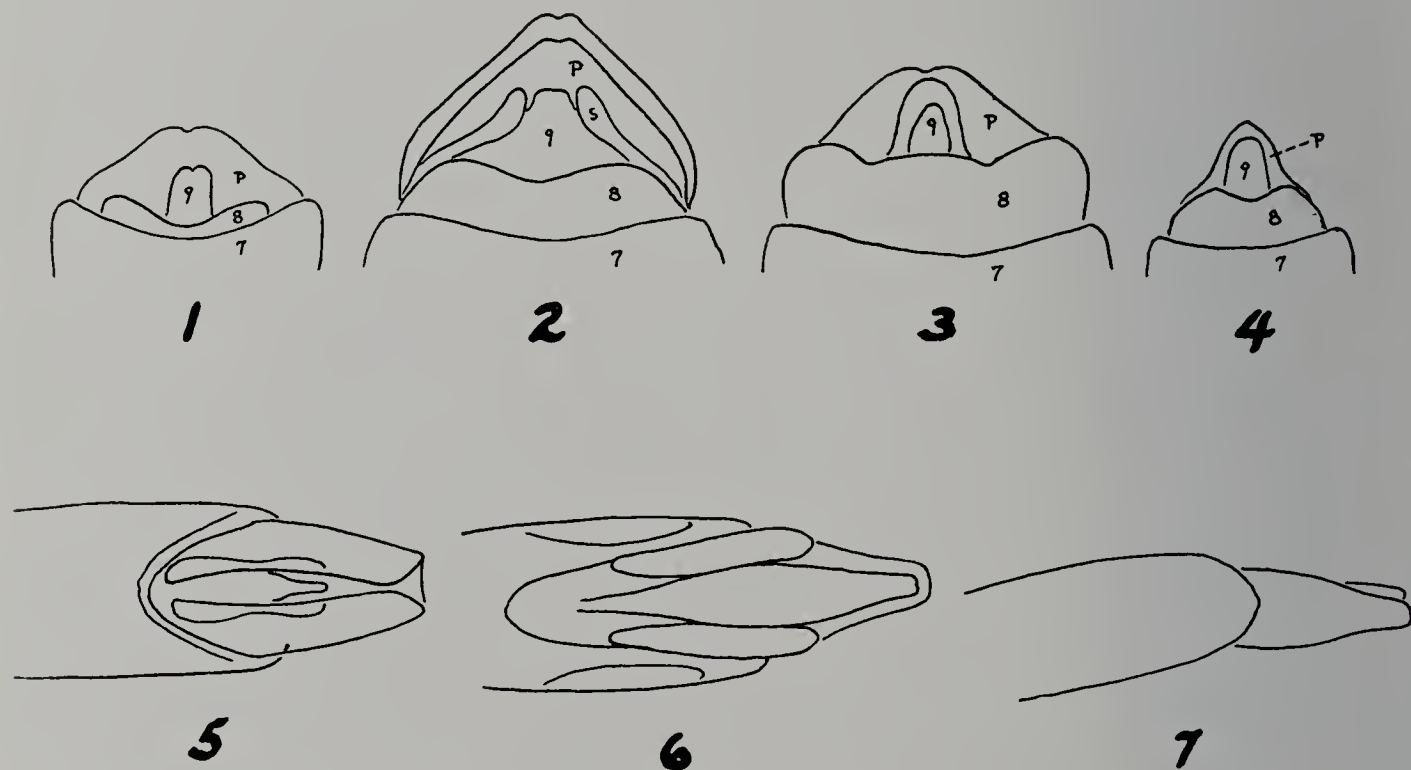
Photinoides mexicanus McDermott, NEW SPECIES
(FIG. 4)

Dorsal appearance much like that of numerous small species of *Photinus*; distinctly smaller than the two preceding species.

HOLOTYPE, MALE: *Dimensions* 7.0 mm. long, 2.55 mm. wide; subparallel. *Pronotum* 1.55 mm. long by 2.1 mm. wide; broadly semi-elliptic; angles about 90°; sides and forward portion not reflexed, both coarsely punctate; disk finely and sparsely punctulate. Short pale villosity on edges and on sides of disk. Disk convex, with longitudinal median brown vitta, widening slightly forward and along basal edge, the brown color extending forward to the apical edge; on each side of vitta an ivory or cream-colored spot having a slight intumescence at the base. Basal margin slightly curved inward. *Scutellum* elliptical, brown; basal half bent upwards. Mesonotal plates dull brown and of an unusual contour to accommodate the base of the scutellum. *Elytra* each 5.5 mm. long by 1.28 mm. wide; subparallel. Explanate margins narrow. Disk a rather dull brown; lateral borders white nearly to apices; extreme apices black, basal sixth reddish brown and nearly bald. Suture white from basal sixth to apical sixth. Villosity fairly long and dense. *Head* with frons concave, reddish brown; 1.5 mm. across eyes, 0.4 mm. between them; eyes relatively large. Mandibles small; palpi of the usual form. *Antennae* dark brown, slightly compressed, hairy, and very slightly tapered; 3.32 mm. long. *Prosternum* and mesosternum a slightly pinkish ivory; metasternum dark brown. *Abdomen* with ventral segments 2 to 5 dark brown; 6 and 7 entirely luminous and about 1.5 times as long as 5th; both slightly emarginate medially. 8th segment nearly transparent, sharply emarginate medially, and longitudinally sulcate; as wide as the 7th, and about $\frac{3}{4}$ as long; 9th (genital) ivory, hairy, ogival. *Pygidium* wider and longer than the 8th segment, closely applied to the latter laterally, and arched above the 9th segment; rather pale, with brown edges. *Legs* all more or less infusate; claws simple.

Female not available.

HOLOTYPE male, 6 miles north of Tomazunchale, San Luis Potosi, Mexico, collected by Henry Howden, August 22, 1960. The holotype is in the Howden collection in Ottawa, Ontario.



FIGURES 1-4. Ventral views of male abdominal apices; p means pygidium, s means spoon-shaped projection, and the numbers 7, 8, and 9 refer to the appropriate segments. 1—*Photinus pyralis*. 2—*Photinoides mystrionophorus*. 3—*Photinoides penai*. 4—*Photinoides mexicanus*.

FIGURES 5-7. Aedeagus of *Photinoides penai*, male. 5—Dorsal view. 6—Ventral view. 7—Lateral view.

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CARPOPHILUS PILOSELLUS MOTSCHULSKY, NEW
SYNONYMY AND DISTRIBUTION¹ (COLEOPTERA:
NITIDULIDAE)

By WALTER A. CONNELL²

Carpophilus pilosellus Motschulsky is a member of the *dimidiatus* group which includes nearly a dozen widely distributed beetles infesting stored products. This species occurs occasionally in the southern part of the United States.

The synonymy is as follows:

Carpophilus pilosellus Motschulsky, 1858, Etudes Ent. 7: 41.

Carpophilus floridanus Fall, 1910, Trans. Amer. Ent. Soc. 36: 122.

Carpophilus halli Dobson, 1954, Ent. Mon. Mag. 88: 299 (NEW SYNONYMY)

Fall's type of *floridanus* from Enterprise, Florida is at the Museum of Comparative Zoology, Cambridge, Massachusetts. It is a male which has its hind tibiae abruptly enlarged for the distal two-thirds of their length. Fall was the first to mention the expanded male hind tibiae in connection with this species. Gillogly (1962. Insects of Micronesia 16: 158), who placed *floridanus* in synonymy, used this character in his key as a basis for separa-

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